

Serial No.: 09/929,716

Attorney Docket No.: 2001P14759 US

REMARKS

Upon entry of the instant Amendment, Claims 1-11 are pending. Claims 1, 4, 6, and 10 have been amended to more particularly point out applicant's invention.

Claims 1, 2, and 6 were rejected under 35 U.S.C. 103(a) as being unpatentable over Vaananen et al., U.S. Patent Application No. 2003/0091111 ("Vaananen") in view of deLantremange, U.S. Patent No. 5,970,093 ("deLantremange"). Applicant respectfully submits that the claimed invention is not taught, suggested, or implied by Vaananen or deLantremange, either singly or in combination.

As described in the Specification, aspects of the present invention relate to a transmit filter that substantially reduces intersymbol interference. The generation of the filter coefficients occurs during calibration, for example, at the factory. The filter response is generated by constraining the coefficients in their adaptation at the optimal sampling point and unconstraining them elsewhere. That is, the error metric is updated only at the optimum sampling point rather than at every sample.

According to one embodiment, a transmit shaping filter is derived from the complex conjugate of an initial filter and convolving the initial filter with a data sequence representative of, or modeling, channel noise and intersymbol interference. Thus, claim 1 has been amended to recite "specifying an initial shaping filter; determining a level of intersymbol interference for a final shaping filter where said final shaping filter is obtained by further processing said initial shaping filter, including generating a data sequence for modeling channel noise and intersymbol interference;" and claim 6 has been amended to recite "a shaping filter for shaping said coded data, the shaping filter generated by constraining the filter coefficients in their adaptation at the optimal sampling point and not constraining them at the non-sampling points, an initial shaping filter comprising a channel noise model and intersymbol interference shaping filter for minimizing intersymbol interference."

In contrast, Vaananen relates to a system for implementing the training phase of adaptive channel equalization on a digital communications path, wherein the data transfer channel has a stop band in the digital spectrum. During the training period,

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Vaananen uses a "sparser signal constellation." The system then switches to the actual data symbol constellation. However, contrary to the suggestion in the Official Action, the sparser signal constellation relates to the data signal, and not, as recited in the claims at issue, "a data sequence for modeling channel noise and intersymbol interference."

DeLantremange likewise does not appear to, inter alia, process an initial shaping filter by generating a data sequence for modeling channel noise and intersymbol interference. While deLantremange provides an adaptive filter, coefficients do not appear to be generated, e.g., by convolving with a model of channel noise and intersymbol interference, as generally recited in the claims at issue. As such, the Examiner is respectfully requested to reconsider and withdraw the rejection.

Claims 3 and 7-9 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Vaananen and deLantremange in view of Segal, U.S. Patent No. 6,647,069 ("Segal"). Applicant respectfully submits that the claimed invention is not taught, suggested or implied by Vaananen, deLantremange or Segal, either singly or in combination. Segal is relied on for allegedly teaching convolving a spectral shaping filter with its matched filter. However, like Vaananen and deLantremange, Segal does not appear to process an initial shaping filter by generating a data sequence for modeling channel noise. As such, the Examiner is respectfully requested to reconsider and withdraw the rejection.

Claims 4 and 5 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Segal, and further in view of Vaananen and deLantremange. Applicant respectfully submits that the claimed invention is not taught, suggested or implied by deLantremange, Segal, or Vaananen, either singly or in combination. Claim 4 has been amended to recite "generating a data sequence, said data sequence comprising a channel noise and intersymbol interference model."

Vaananen, DeLantremange and Segal have been discussed above. For reasons similar to those discussed above, Applicant respectfully submits that these claims, too, are allowable. As such, the Examiner is respectfully requested to reconsider and withdraw the rejection.

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Claims 10 and 11 were rejected under 35 U.S.C. 103(a) as being unpatentable over Segal, Vaananen, deLantremange, and further in view of Sehier, U.S. Patent No. 5,933,467 ("Sehier"). Applicant respectfully submits that the claimed invention is not taught, suggested or implied by Segal, Vaananen, deLantremange or Sehier, either singly or in combination. Claim 10 has been amended to recite "first convolving said initial filter with its complex conjugate to obtain an initial shaping filter;

second convolving said initial filter with a data sequence, said data sequence comprising a channel noise and intersymbol interference model."

Sehier is relied on for allegedly teaching a complex conjugate filter. However, like Segal, Vaananen, deLantremange, Sehier does not appear to relate to a second convolving, the second convolving being that of a data sequence that models channel noise and intersymbol interference. As such, the Examiner is respectfully requested to reconsider and withdraw the rejection.

For all of the above reasons, Applicants respectfully submit that the application is in condition for allowance, which allowance is earnestly solicited.

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